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THE MAGNAVOX COMPANY
URBANA, ILLINOIS

414152

MONTHLY PROGRESS REPORT NO. 18
(From 1 June to 30 June 1963)

5 July 1963

SOLID-STATE ARM SAFE DEVICE (PHASE I: I)
CONTRACT DA-11-022-ORD-4048

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5 July 1963

PROJECT DEFINITION

The purpose of this third phase four-month program is to design, develop and fabricate at least three miniature electronic Solid State Arm Safe Devices capable of functioning in various warheads for Army missiles under a wide range of environmental conditions. The first outputs must activate a squib at a preselected acceleration. The second output is to have a Solid State switching circuit which will provide an electrical change of state after the missile has traveled a preselected distance from the launch site.

SCOPE

The three (3) miniature Solid State Arm Safe Devices will have the following properties:

- 1) Maximum acceleration - up to 40 g's
- 2) Total time before arming - up to 100 seconds
- 3) Total distance in flight before arming - up to 100,000 meters
- 4) Vibration 21 to 700 cps at ± 10 g's for ten (10) minutes in each of three (3) orthogonal axis.
- 5) Maximum temperature range -65°F to $+200^{\circ}\text{F}$
- 6) 95% humidity for six (6) hours at 160°F .
- 7) The volume of the miniature units shall not exceed two (2) cubic inches and the weight shall not exceed six (6) ounces.
- 8) The size of the units shall be cylindrically shaped (1.5 inches in diameter and approximately one inch high).
- 9) The solid state circuits shall not require more than 6 volts (5.6 volts) with a current drain of no more than 200 milliamperes.
- 10) The miniature models must withstand a 400 g drop for a period of one (1) millisecond regardless of impact orientation.

- 11) The miniature Solid State Arm Safe Device shall have one (1) output switch which shall be activated as a function of a particular acceleration; the other output switch shall be activated as a function of distance. An attempt will be made to receiver acceleration switchings with an accuracy to within $\pm 2\%$ The distance accuracy must be less than $\pm 25\%$
- 12) The solid state devices shall be classified as demonstration units which shall have small connectors compatible with the miniaturization scheme.

Performance of the above program of work shall be under supervision of the Technical Supervisor (Picatinny Arsenal).

ACCOMPLISHMENTS

This particular phase of the program is finished and the three miniature electronic Solid State Arm Safe Devices have been delivered to the customer on schedule. The Final Summary Report for Phase III has been written and is in the process of being completed by our Publications Department. This report will be distributed before the end of July

Refer to the Conference Report written 28 June 1963 for a summarizing tentative scope of work for the next phase.

HOURS EXPENDED DURING REPORT PERIOD

Engineering	9.0 hours
Technician	90.0 hours
Services	<u>7.5</u> hours
TOTAL	106.5 hours